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bastardized, that theory being that unripe ova are partially impregnated by the spermatozoa of the foreign male, not sufficiently to fully vivify them, the influence of this impregnation affecting only the epiblast, from which the skin is evolved, and a subsequent fertilization brings full life to the ova, determining other features of the fœtus. Thus, in the case of a pug bitch, which had a mongrel litter by a Skye terrior, and at her subsequent whelping by a pug dog, had some puppies with rough hair, these "influenced" puppies had the conformation of the pug all over, even to the twisted tail.

However, be the scientific part of the question what it may, the too common idea that a bitch having a mongrel litter will show influence of that litter in all future offspring, is utterly fallacious.

Yours truly, W. WADE.

Oakmont, Pa., Sept. 14, 1896.

ENTOMOLOGY.[1]

A New Character in the Colobognatha, with Drawings of Siphonotus.—In all known Diplopoda the external seminal apertures are located just behind the second pair of legs or in the coxæ of the second legs. In all Diplopoda except Polyxenus one or more pairs of legs are more or less modified to assist in copulation. In a great majority of forms the legs most modified are those of the seventh segment, but in two groups, the Omniscomorpha and Limacomorpha of Pocock the legs of the seventh segment are unmodified, while one or more pairs at the caudal extremity of the body are transformed into copulatory organs. The modification which has taken place in the Limacomorpha is very slight, for according to Mr. Pocock's descriptions and figures the last legs of *Glomeridesmus marmoreus*[2] consist of four or five joints and differ from the others mostly in being shortened and thickened. An equal or greater degree of specialization is now known to exist in other legs than those of the seventh segment, indeed, an almost equal peculiarity of structure is sometimes manifested by nearly all the male legs of certain genera of Polydesmidæ, Spirostreptidæ and Spirobolidæ. Especially noteworthy are the first pair of legs in Iulidæ, Parajulidæ and Pæromopodidæ; the second pair of legs of Stemmatoiulidæ and Parajulidæ; the third pair in Striariidæ. With-

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[1] Edited by Clarence M. Weed, New Hampshire College, Durham, N. H.

[2] Journ. Linn. Soc. Zool., XXIV, 475.

out detailing the very numerous and striking contrivances displayed by nearly all the anterior legs of some Craspedosomatidæ, it is sufficient to point out that in Scytonotus[3] modifications apparently as great as those of Glomeridesmus occur as far back as the twentieth pair of legs. In the light of these facts the degree of modification shown by Glomeridesmus counts for little or nothing as an evidence of relationship with the Oniscomorpha. It might be said that Glomeridesmus has no copulatory legs at all, for the structures figured by Mr. Pocock are probably not comparable with the true copulatory legs of the other Diplopod groups, either in structure or function. The really remarkable thing about Glomeridesmus is that the legs of the seventh segment are not modified. Yet on this account we are not obliged to arrange Glomeridesmus in a separate category, for the degrees of modification to be found in the legs of the seventh segment of the other Diplopod groups are very various. It is even possible to trace, in the second pair of legs of the seventh segment of Craspedosomatidæ all the stages from the nearly normal to the completely modified condition. Thus with reference to the fact that the seventh legs are unmodified, Glomeridesmus may be looked upon as one end of a series, not necessarily farther removed from the other groups than they are from each other. Certainly the distance between the unmodified legs of Glomeridesmus and the distinctly jointed copulatory legs of Polydesmoidea and Polyzonoidea is not greater than that between those of the Polydesmoidea and the Spirostreptoidea.

If, however, we admit that differences in the position and degree of modification of legs transformed for copulatory purposes are not of themselves characters of fundamental importance in the Diplopoda, we may seem to be under the necessity of admitting in addition that the constant appearance of what we may call the true copulatory legs in the place of the anterior or both pairs of the seventh segment is an evidence that the Helminthomorpha of Pocock are a homogeneous group to the extent of having more affinity with each other than with the Oniscomorpha. If, however, facts exist which indicate that the copulatory legs may have had independent origins in any of the Helminthomorpha the evidence just referred to is largely overthrown, for the utter diversity in plan of the copulatory legs of the different orders of Diplopoda is itself a strong indication that they represent independent lines of development. Such seems to be the import of the fact that the legs which in the Merocheta[4] are primarily transformed

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[3] Am. N. Y. Acad. Sci., VIII, 233 (1894).

[4] An ordinal name to cover the Polydesmoidea, Craspedosomatoidea and Callipodoidea. Cf. Ann. N. Y. Acad. Sci., Vol. IX, (1895).

into copulatory organs, the anterior pair of the seventh segment, are in the Colobognatha *entirely unmodified.* Hence we must suppose that either the legs or the function have migrated, in case we assume a common origin and attempt to homologize the copulatory legs in the two orders. The theory of migration, however, has no facts to support it, and would be equally fatal to the idea that affinity or the want of it can in the Diplopoda be inferred from the position of the copulatory legs.

The fact that the Colobognatha have eight precopulatory legs is not new, but up to this time the whole eight have been supposed to belong to the first six segments. Both Latzel and Pocock[5] give the distribution of these legs as in the second column. In reality the arrangement is that of the third column.

	Latzel.	*Siphonotus.*
First segment,	First pair,	First pair.
Second segment,	Second pair,	Second pair.
Third segment,	Footless,	Third pair.
Fourth segment,	Third pair, Fourth pair.	Fourth pair.
Fifth segment,	Fifth pair, Sixth pair.	Fifth pair.
Sixth segment,	Seventh pair, Eighth pair,	Sixth pair. Seventh pair.
Seventh segment,	First copulatory, Second copulatory,	Eighth pair. First copulatory.
Eighth segment,	Eleventh pair. Twelfth pair,	Second copulatory. Eleventh pair.

My attention was first attracted to these facts while engaged in examining specimens of Siphonotus collected in Sierra Leone in December, 1893. The creatures were abundant in decaying banana stumps in Freetow, and I secured a large quantity. Instead of curling up as nearly all the representatives the present order are accustomed to do when placed in alcohol, my specimens remained conveniently straight and pliable so that they could be mounted in alcohol or balsam and studied to advantage. Of the arrangement of the legs as here stated there can be no doubt. The drawings are mostly camera tracings made from preparations in balsam. In order to make sure of the condition in Polyzonium, the genus studied by Latzel, I cut animals in two horizontally, brushed away the internal structures and mounted in balsam.

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[5] Mr. Pocock seems to have come to doubt this disposition, for he uses a "?" in front of his last statement on the subject.—Max Weber's Reise, p. 335.

Without such a preparation satisfactory observation is very difficult if not impossible in Polyzonium, for all the parts, especially the bases of the legs, are crowded together. I have examined in addition Andro, gnathus, Platydesmus, Pseudodesmus, Siphonorhinus and Siphonophora without finding any indications that the condition described is not present in all, though a final demonstration would in most cases not be easy without dissection.

Probably correlated with the comparatively slight degree of specialization which appears in the copulatory legs of the Colobognatha is the fact that in young males of Siphonotus the copulatory legs are several-jointed before maturity. Such a condition seems to be unknown in the other helminthomorphous groups.

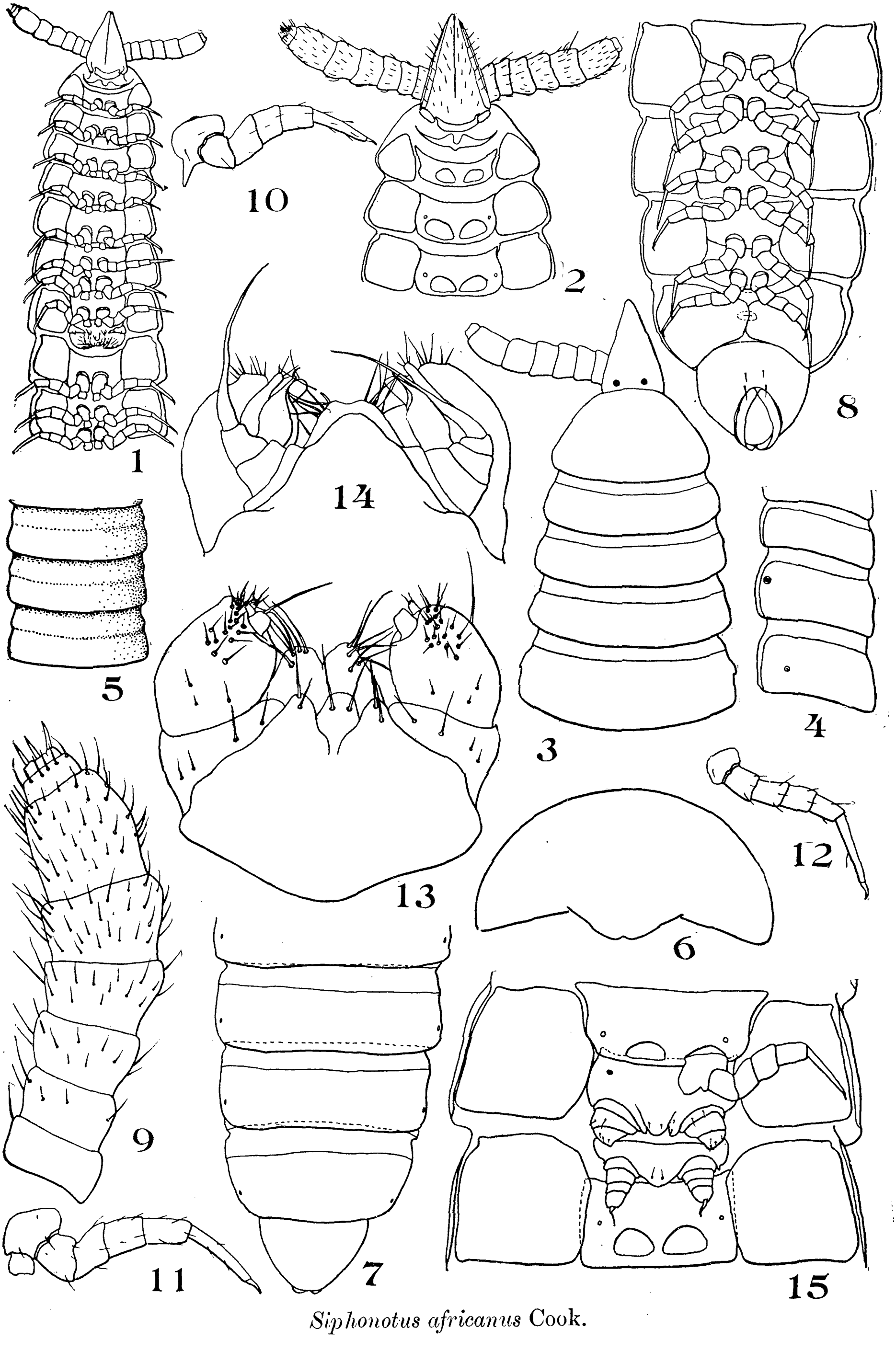
In the previous discussion there has been no intention to imply that the orders Oniscomorpha and Limacomorpha are not valid; the contention is merely that the position of the modified legs does not *of itself* justify holding them as divisions of greater weight than other natural groups of Diplopoda, some of which have been designated by ordinal names. It is to be expected that future study may result in a natural arrangement of the groups now designated as orders, but until their affinities are demonstrated nothing is to be gained by attempting to retain under one ordinal name and description animals which may prove to be widely divergent in their development history. Thus it is by no means impossible that the Colobognatha are really a group farther removed from the other Helminthomorpha than are some of these latter from the Oniscomorpha. Many of the peculiar characters of the Oniscomorpha are evidently the result of their power to roll themselves into a sphere, and are not to be assigned great weight in estimating affinities.

Systematic Note.—The genus Siphonotus has not until very recently been reported since its establishment by Brandt in 1836. Within the last year or two Mr. Pocock has described species from St. Vincent (West Indies), Java and Celebes. To me it seems doubtful whether any of these species are congeneric with Brandt's type *S. brasiliensis.* Provisionally, however, the species of which drawings are presented may be described under Siphonotus, no doubt being possible that its affinities are here rather than with any other genus yet established.

Siphonotus africanus sp. n.

Body slender, the sides parallel to near the ends, or very slightly converging cephalad.

PLATE XVIII.



Siphonotus africanus Cook.

Head smooth and shining, sparsely hirsute distad.

Eyes of a single ocellus on each side, large and strongly pigmented.

Antennæ sparsely hirsute, strongly crassate, scarcely clavate ; joints increasing in length from the first to the sixth.

Hypostoma distinct, medianly deeply excavate.

Mentum distinct, on each side a large cardo (?). Other parts of gnathochilarium indistinct ; the lines of the figures may represent internal structures only.

First segment longer than the others, which increase in length to the middle of the body and are scarcely shorter caudad ; surface of all the segments smooth and shining.

Repugnatorial pores in a continuous series from the fifth segment, removed considerably from the margin of the scuta, except those of the fifth segment, which are also distinctly larger than the others.

Pleuræ large and entirely free, smooth and shining.

Pedigerous laminæ distinct, free ; sometimes the edges of the pedigerous laminæ and the pleuræ lie one upon the other.

Penultimate segment without legs, in contact or overlapping, but not closed below.

Anal valves narrow ; preanal scale wanting.

Legs sparsely hirsute, all six-jointed, with a rudimentary second joint which would make seven.

Males with a conic process from the coxæ of the second legs. All the other legs except the first have a coxal aperture from which projects a transparent membrane or secretion.

Male genitalia, see figures.

Color of living animals, pinkish, pale to dull reddish-pink.

Length of mature individuals up to 15 mm., width .75 mm. ; segments of adults 39–55. The males are distinctly smaller than the females. The young male specimen from which fig. 15 was drawn has 24 segments, all but two of which bear legs, as in the mature animals.—O. F. Cook.

Explanation of Plate.

Siphonotus africanus.

Fig. 1. Head and first nine segments, ventral view, to show arrangement of legs.

Fig. 2. Head and first three segments, ventral view, the legs removed to show pedigerous laminæ, spiracles, etc.

Fig. 3. Head and five segments, dorsal view.

Fig. 4. Segments 4–6, lateral view, to show the peculiarly enlarged pore of the fifth segment.

Fig. 5. Three normal segments, dorsal view, less magnified than fig. 3.
Fig. 6. Diagrammatic cross-section, showing relative positions of the parts of the exo-skeleton.
Fig. 7. Last five segments, dorsal view.
Fig. 8. Same, ventral view.
Fig. 9. Antenna, much magnified, ventral view.
Fig. 10. Second leg of male.
Fig. 11. Eleventh leg of male.
Fig. 12. Last leg of male.
Fig. 13. Male copulatory legs, dorsal view.
Fig. 14. Same, ventral view.
Fig. 15. Segments seven and eight of young male.—O. F. Cook.

PSYCHOLOGY.[1]

Congress of Psychologists.—The third Congress of Psychologists was held at Munich, August 4th to 9th, Prof. Stumpf, of Berlin, presiding. It was the largest and in many respects the most successful of the three. Of course the German attendance was fuller than at the last one, held in London in 1892, and German delegates are always most welcome. When we take into account the fact that Germany is to-day the country where psychology is most vigorously and successfully pursued, it follows that this Congress was, up to date, the greatest gathering of eminent psychologists ever seen. As to France, the attendance was disappointing in numbers, although the delegation was very representative; and the same is true of the British contingent. The other countries, except America, were adequately represented; the small attendance from our side of the water being a matter of the more surprise in view of the tendency of our professors to take their vacations abroad—indeed, the attendance at the last Congress in London was considerably larger.

In its general character, the tendency to allow the popular attendance upon the meetings to swamp the scientific proceedings was more marked in Munich, and it is not too much to say that this constituted a very great defect in the arrangements. The membership was over four hundred. There was a constant flow from hall to hall, and the corridors

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[1] Edited by H. C. Warren, Princeton University, Princeton, N. J.